

TA-A77N/D709N

SERVICE MANUAL

AEP Model
UK Model

TA-D709N

E Model
Australian Model
Tourist Model

TA-A77N



This set is the Power Amplifier section in LBT-A77CD/A77CDM/D709CD/D759CD.

This photo is TA-A77N.

SPECIFICATIONS

Peak music power output	A77N : 1000W (4 speakers driven)
Continuous RMS power output	
FRONT	A77N : 90W+90W (6 ohms, at 1kHz, 5% THD) D709N: 80W+80W (6 ohms, DIN, 1kHz) D709N: 100W+100W (6 ohms, at 1kHz, 5% THD)
REAR	A77N : 25W+25W (4 ohms, at 1kHz, 5% THD) D709N: 18W+18W (4 ohms, DIN, 1kHz) D709N: 22W+22W (4 ohms, at 1kHz, 5% THD)
Music power output	
FRONT	D709N: 170W+170W (6 ohms, at 1kHz, 10% THD)
REAR	D709N: 30W+30W (4 ohms, at 1kHz 10% THD)
Frequency response	
FRONT	15Hz to 50kHz ± 0.5 dB
REAR	15Hz to 50kHz ± 0.5 dB
Power requirements	(model for Malaysia and Singapore) 120V/220V/230—240V AC, adjustable with the voltage selector, 50/60Hz (model for AUS, EA, E and JE) 120V/220V/240V AC, adjustable with the voltage selector, 50/60Hz (model for AEP, IT, EE and G) 220—230V AC, 50/60Hz (model for UK) 240V AC, 50/60Hz
Power consumption	A77N: 250W D709N: 210W

Mass

Approx. 7.2kg (15 lbs 14 oz)

Dimensions

Approx. 355×135×330mm
(14×5 $\frac{1}{4}$ ×12 $\frac{7}{8}$ inches)
(w/h/d, including projections)

Design and specifications are subject to change without notice.

Note

This appliance conforms with EEC Directive 87/308/EEC regarding interference suppression.

• Abbreviations

AUS:	Australian model
EA :	Saudi Arabia model
JE :	Tourist model
IT :	Italian model
EE :	East European model
G :	German model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

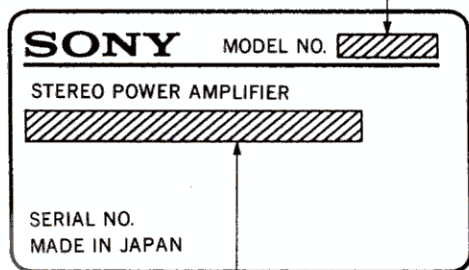
STEREO POWER AMPLIFIER
SONY[®]



MODEL IDENTIFICATION

—Specification Label—

AUS, EA, E, JE, MY, SP model: TA-A77N
AEP, IT, EE, G, UK model : TA-D709N



AEP, IT, EE model : AC: 220V—230V~50/60Hz 210W
G model : SYSTEM LBT-D709
AC: 220V—230V~50/60Hz 210W
UK model : AC: 240V~50/60Hz
AUS, EA, E, JE model: AC: 120V/220V/240V~50/60Hz 250W
MY, SP model : AC: 120V/220V/230V—240V 50/60Hz 250W

NOTE FOR SERVICE

To input from the pin jack by using SEN/LBT service jig, connect the SYSTEM CONTROL 3 (white) of TA-A77N/D709N and the SYSTEM CONTROL 1 (blue) of the service jig with a 10pin or 11pin system cord. This allows pin input.

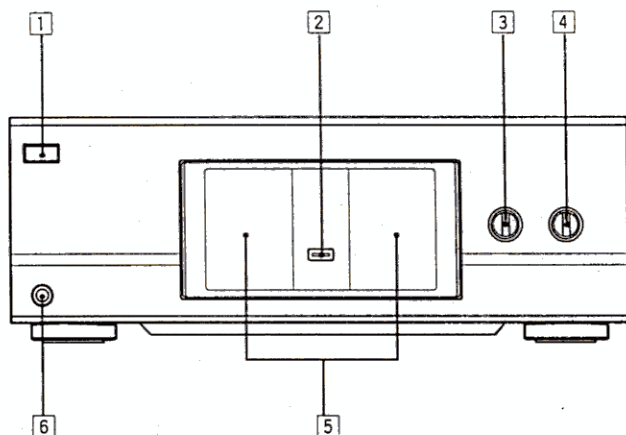
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SECTION 1 GENERAL

This section is extracted from instruction manual.

1-1. PARTS IDENTIFICATION

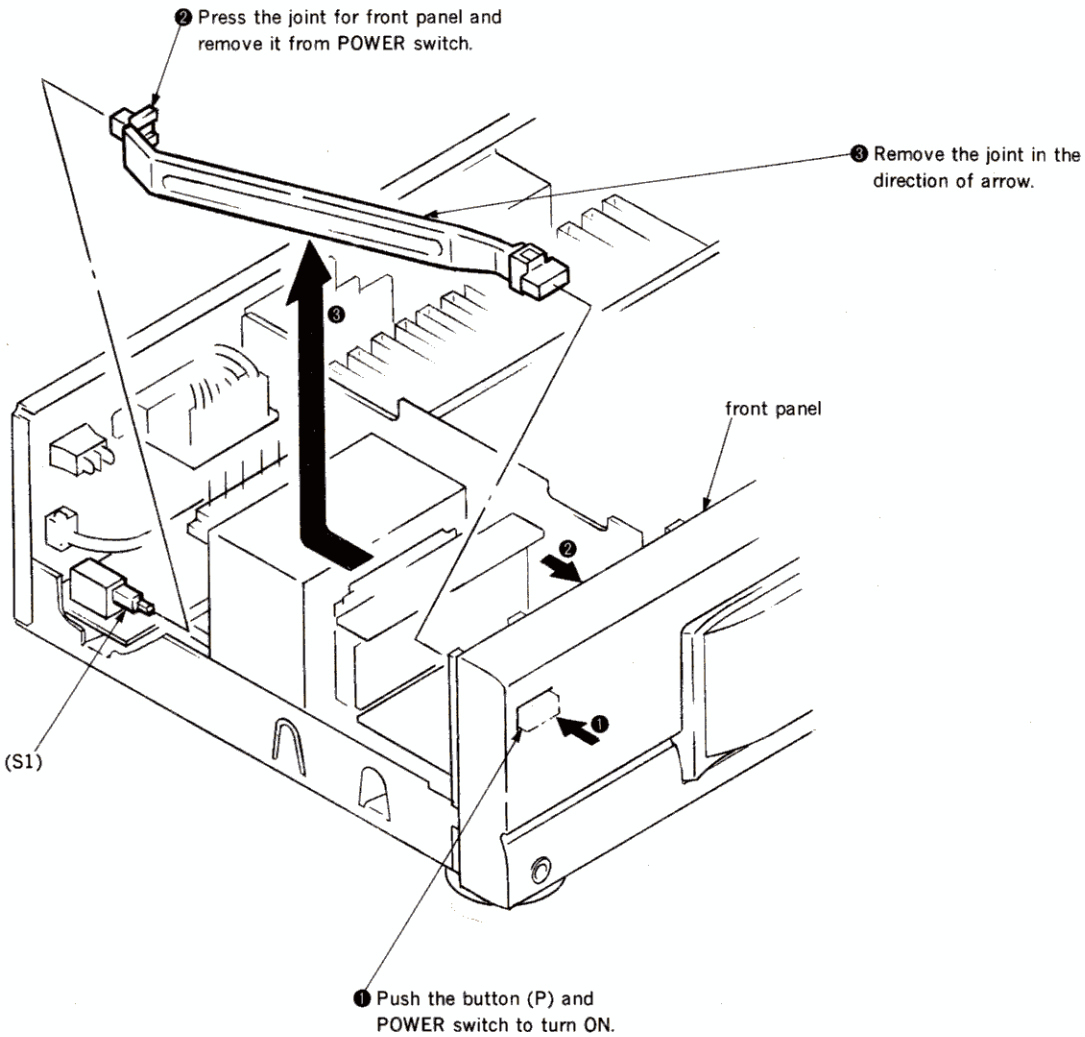


- ① POWER switch (18)
- ② OPERATION indicator (18)
- ③ RANGE switch (20)
- ④ SPEAKERS switch (20)
- ⑤ Peak level meters (20)
- ⑥ HEADPHONES jack (20)

SECTION 2 SERVICE NOTE

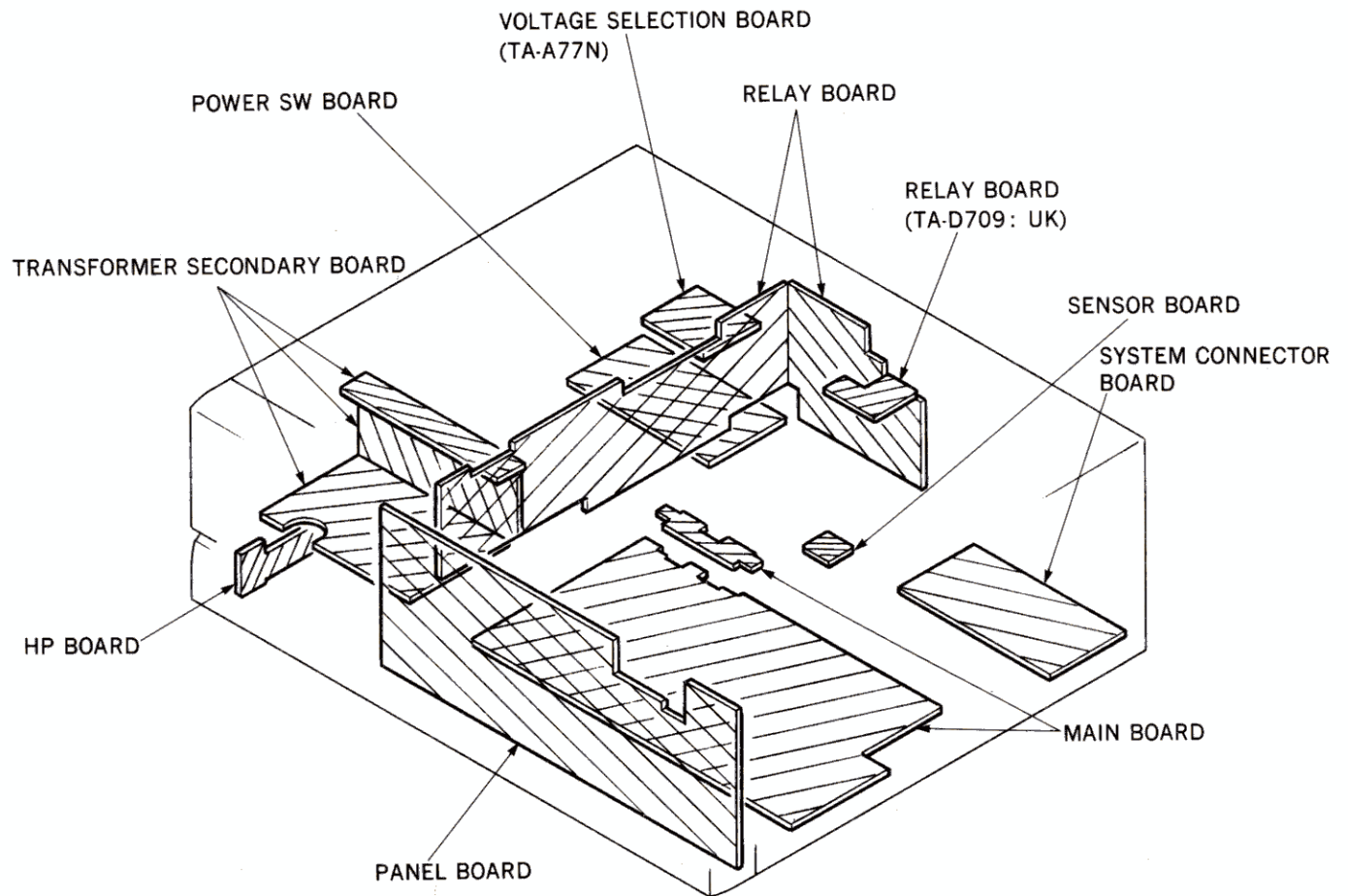
Note: Follow the disassembly procedure in the numerical order given.

2-1. REMOVAL OF JOINT



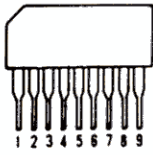
SECTION 3 DIAGRAMS

3-1. CIRCUIT BOARDS LOCATION

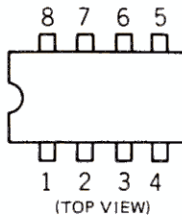


3-2. SEMICONDUCTOR LEAD LAYOUTS

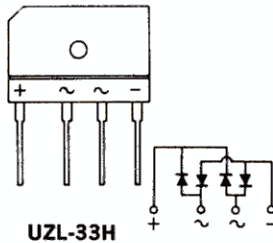
IR2E31A



μ PC393C



RBA-402
RBV-602-01



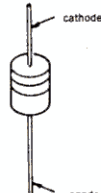
LM35DZ



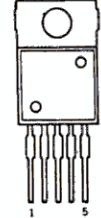
DTA124ES
letter side



UZL-33H



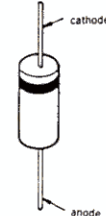
SI-18752N



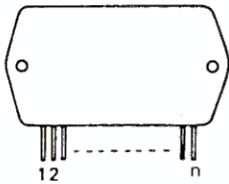
DTC124ES
2SC2603-EF



UZP-6.8BC



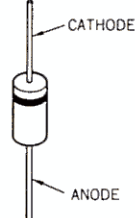
STK-4211MK2



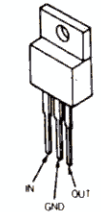
2SB733-34



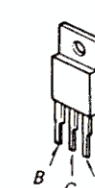
1N4148M
1S1585
10E2N



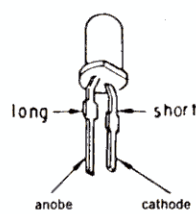
TA7812S



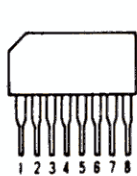
2SB1094-LK



SEL2210W-D
SEL2410E-D



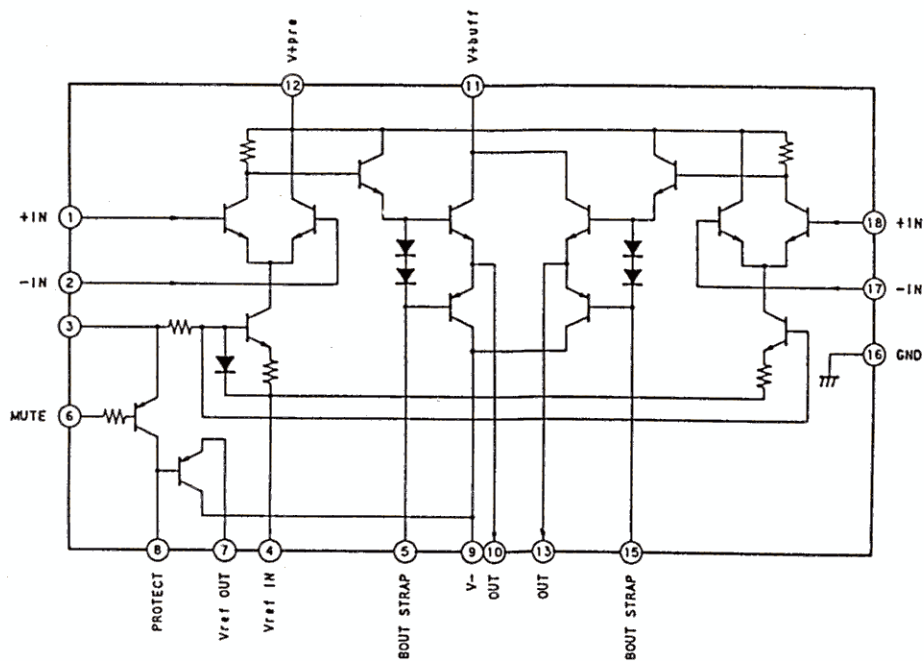
μ PC1237HA



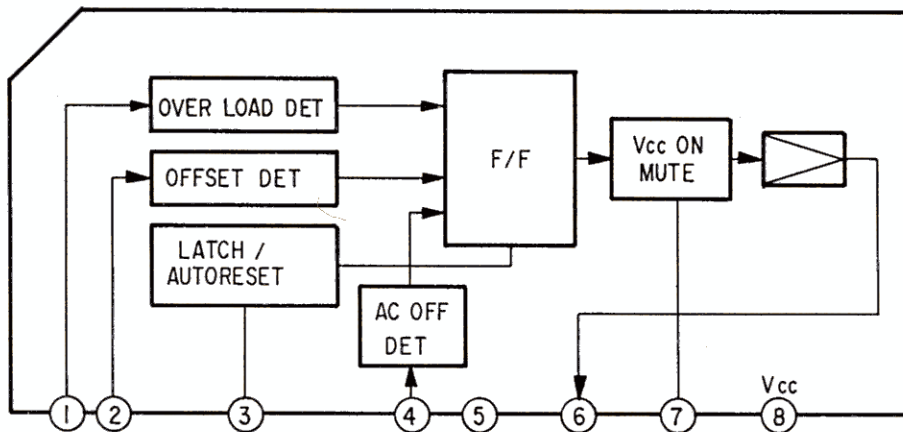
2SC1841-PAFAEA



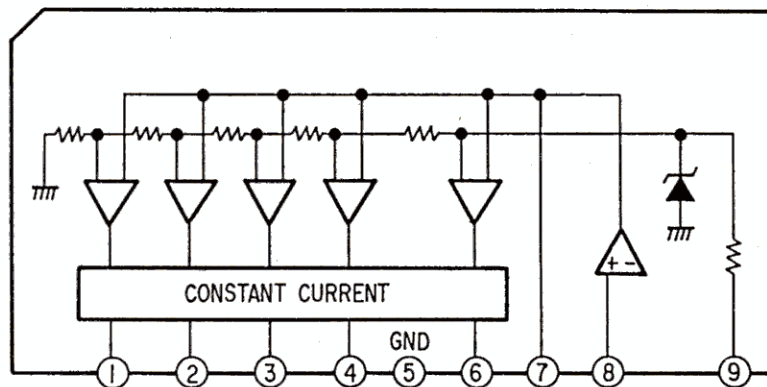
• IC Block Diagrams
IC101 STK4211MKII



IC301 μ PC1237HA



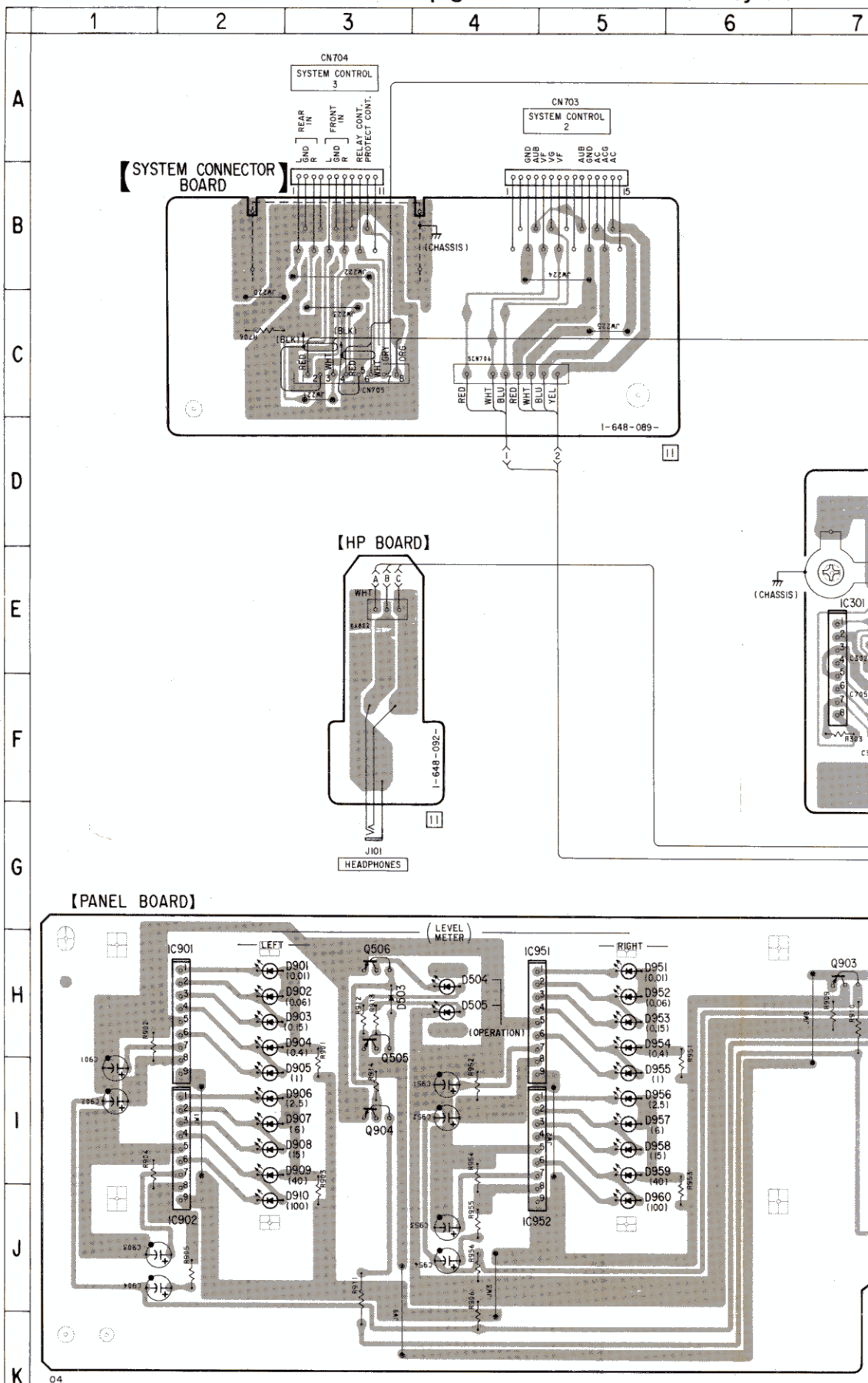
IC901, 902, 951, 952 IR2E31A



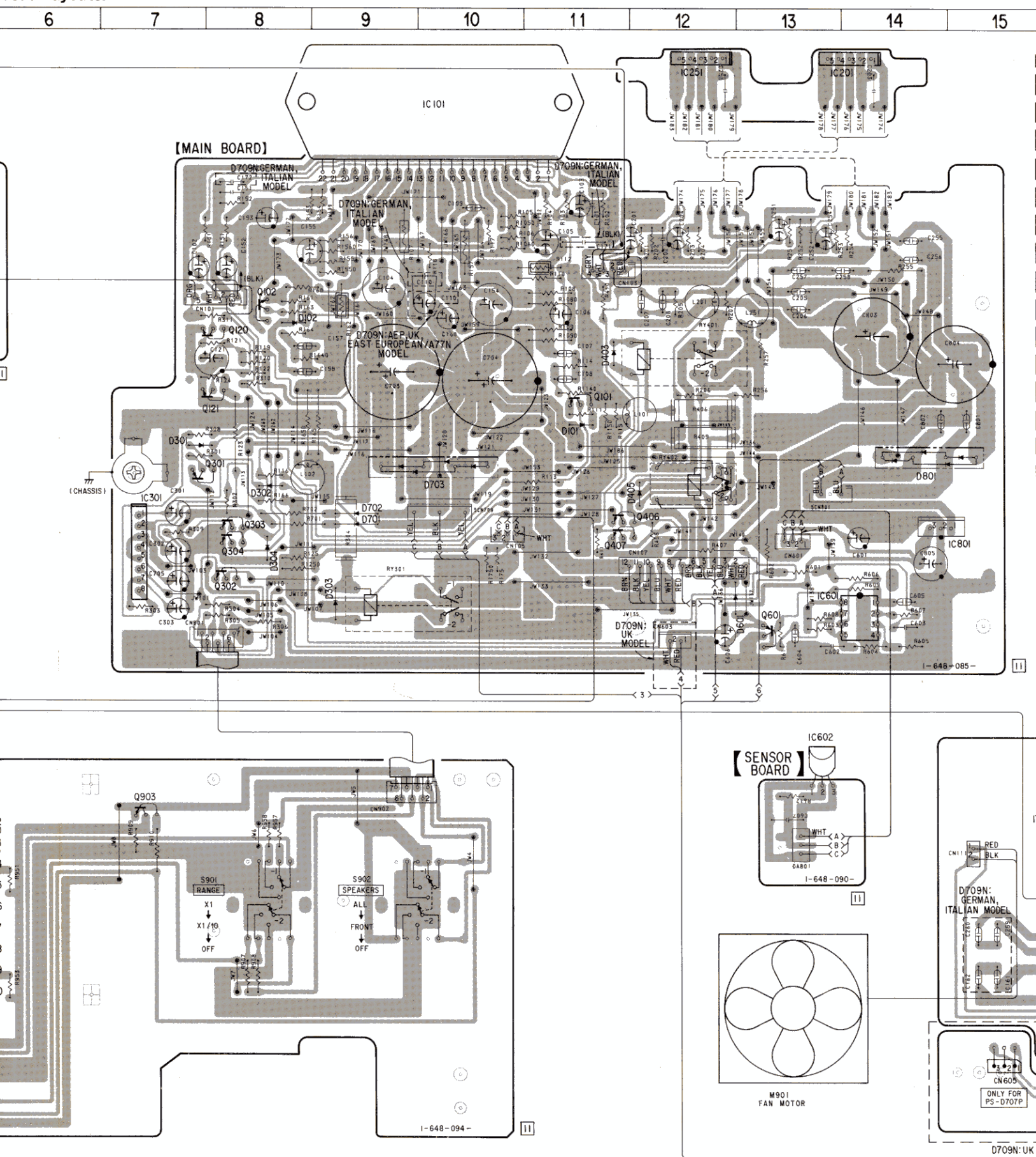
● Semiconductor Location

Ref. No.	Location
D101	D-11
D102	C-8
D301	D-7
D302	E-8
D303	F-9
D304	E-8
D403	C-11
D405	E-12
D503	H-3
D504	H-4
D505	H-4
D601	F-12
D701	E-9
D702	E-9
D703	E-10
D704	G-31
D705	H-30
D706	I-30
D801	E-14
D901	H-2
D902	H-2
D903	H-2
D904	H-2
D905	I-2
D906	I-2
D907	I-2
D908	I-2
D909	I-2
D910	J-2
D951	H-5
D952	H-5
D953	H-5
D954	H-5
D955	I-5
D956	I-5
D957	I-5
D958	I-5
D959	I-5
D960	J-5
IC101	A-10
IC201	A-14
IC251	A-12
IC301	E-7
IC601	F-14
IC602	G-13
IC801	E-14
IC901	H-2
IC902	I-2
IC951	H-4
IC952	I-4
Q101	D-11
Q102	C-8
Q120	C-8
Q121	D-8
Q301	E-7
Q302	F-8
Q303	E-8
Q304	E-8
Q406	E-11
Q407	E-11
Q505	H-3
Q506	H-3
Q601	F-13
Q701	G-30
Q903	H-7
Q904	I-3

3-3. PRINTED WIRING BOARDS ● Refer to page 5 for Semiconductor Lead Layouts.



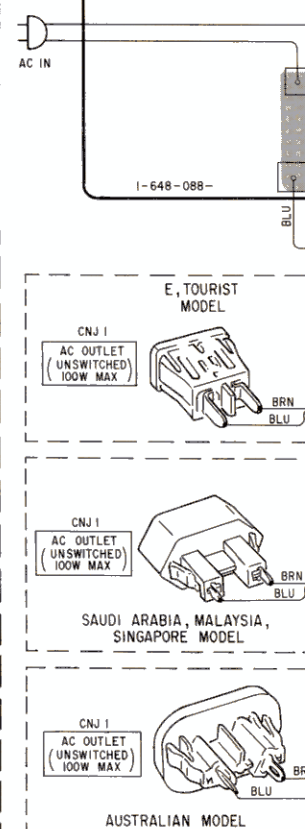
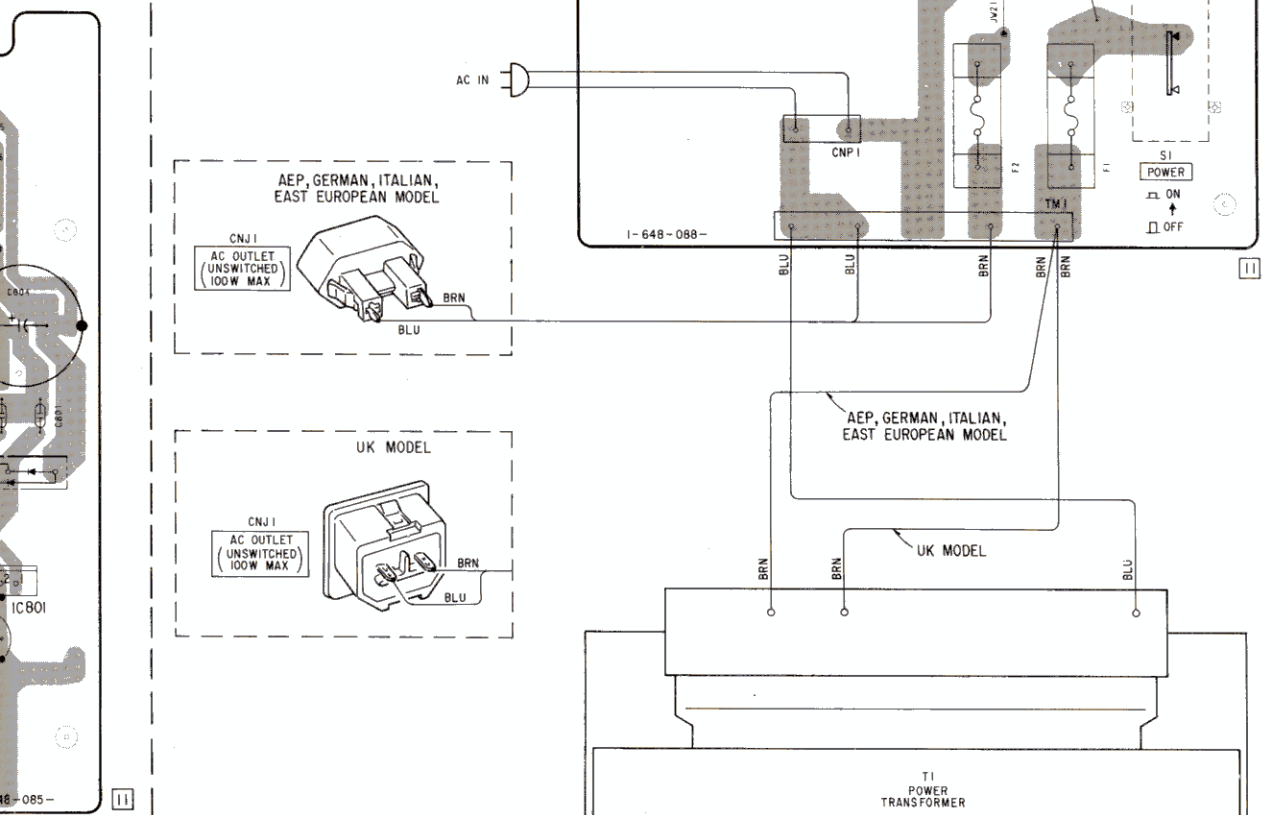
Lead Layouts.



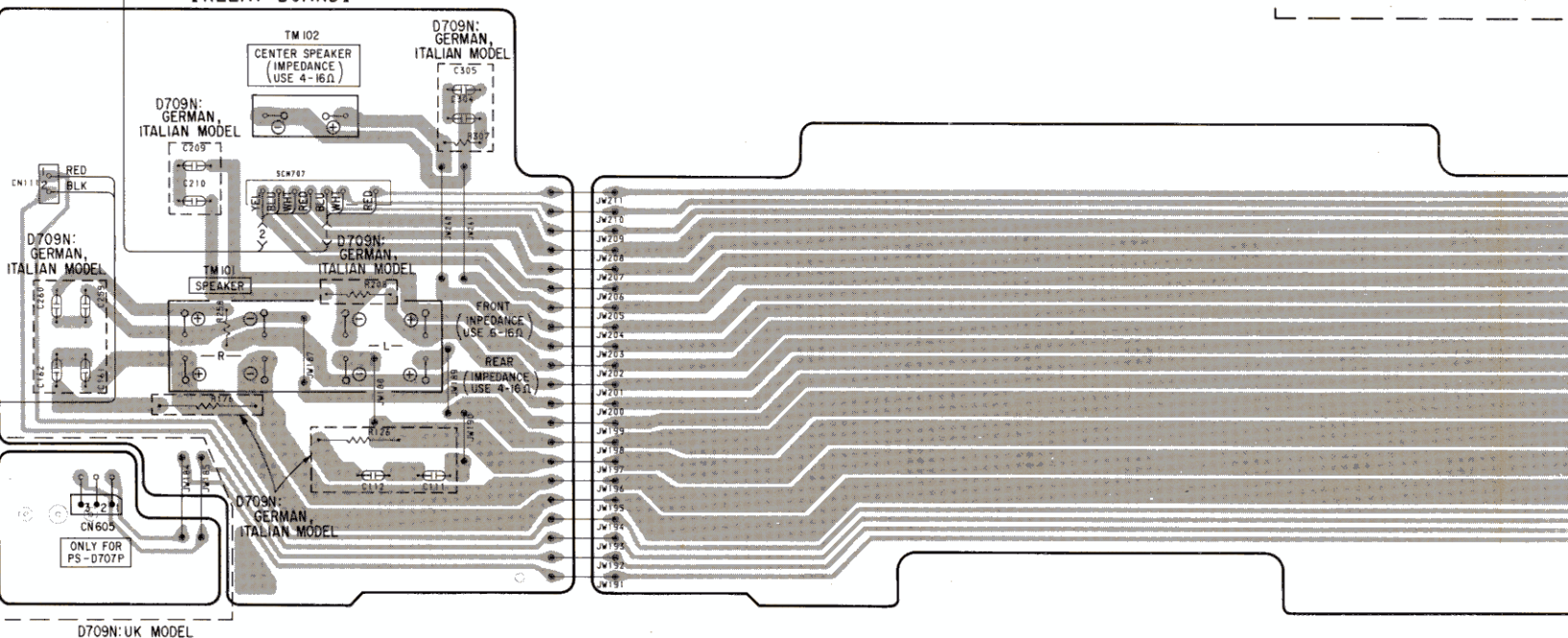
TA-D709N MODEL

【POWER SW BOARD】

【POWER SW BOARD】

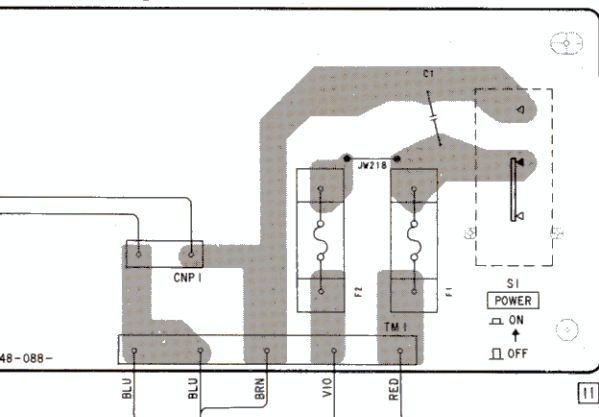


【RELAY BOARD】



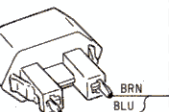
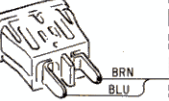
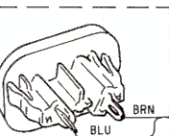
ER SW BOARD]

TA-A77N MODEL



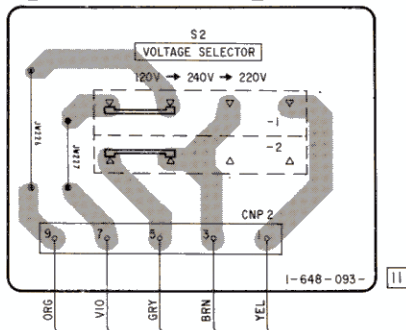
E, TOURIST

MODEL

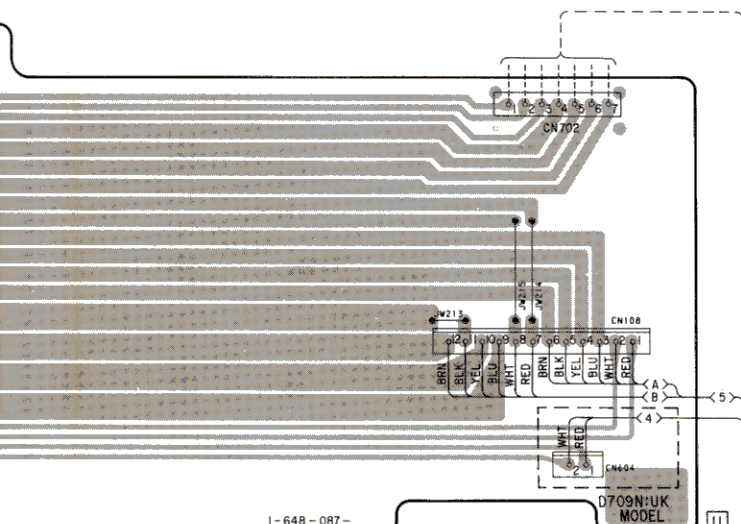
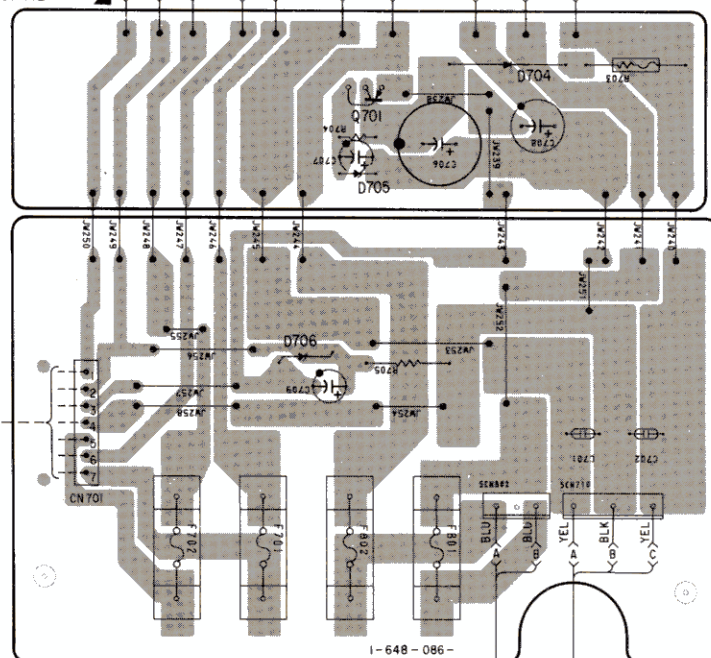
BIA, MALAYSIA,
SINGAPORE MODEL

AUSTRALIAN MODEL

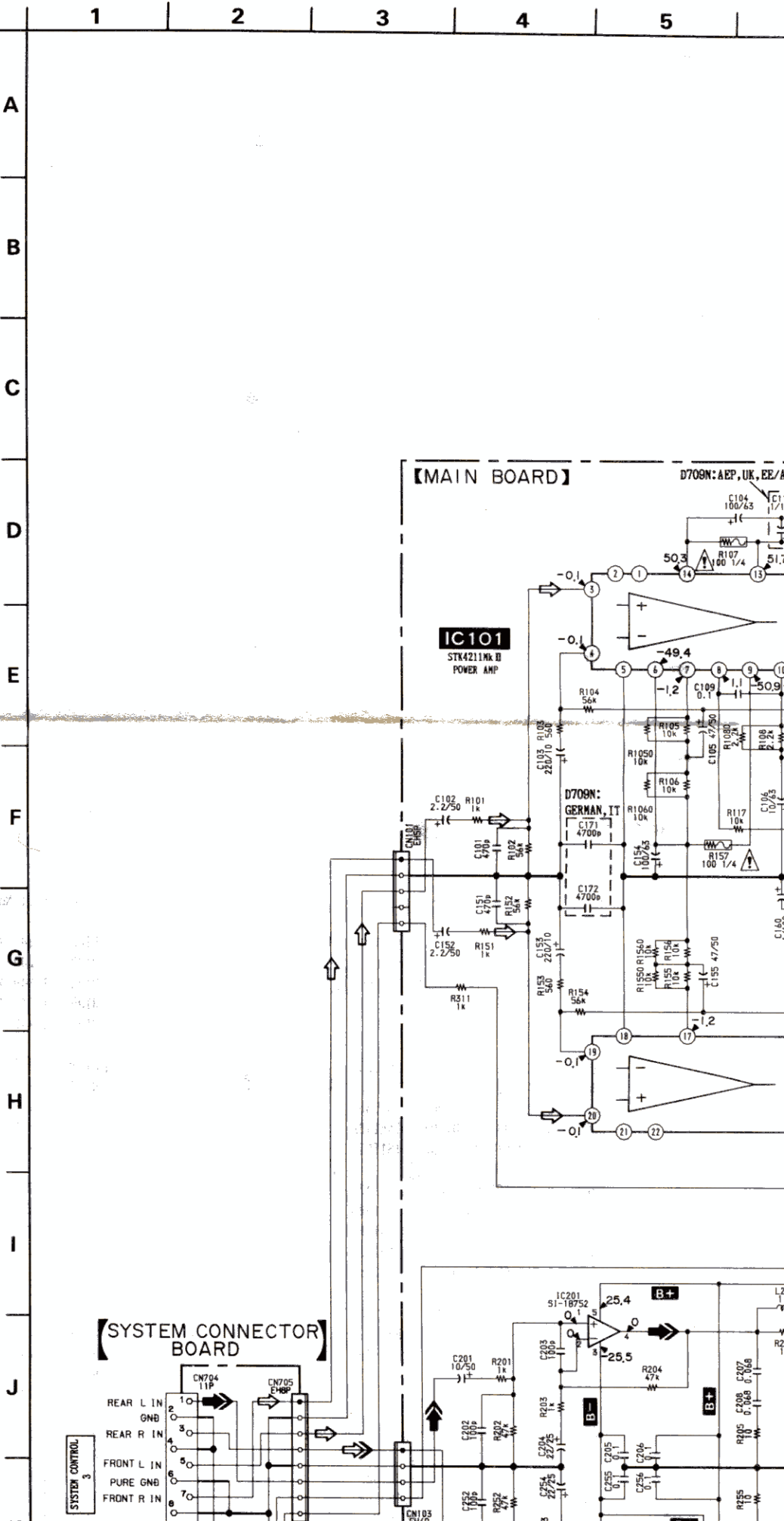
VOLTAGE SELECTION BOARD



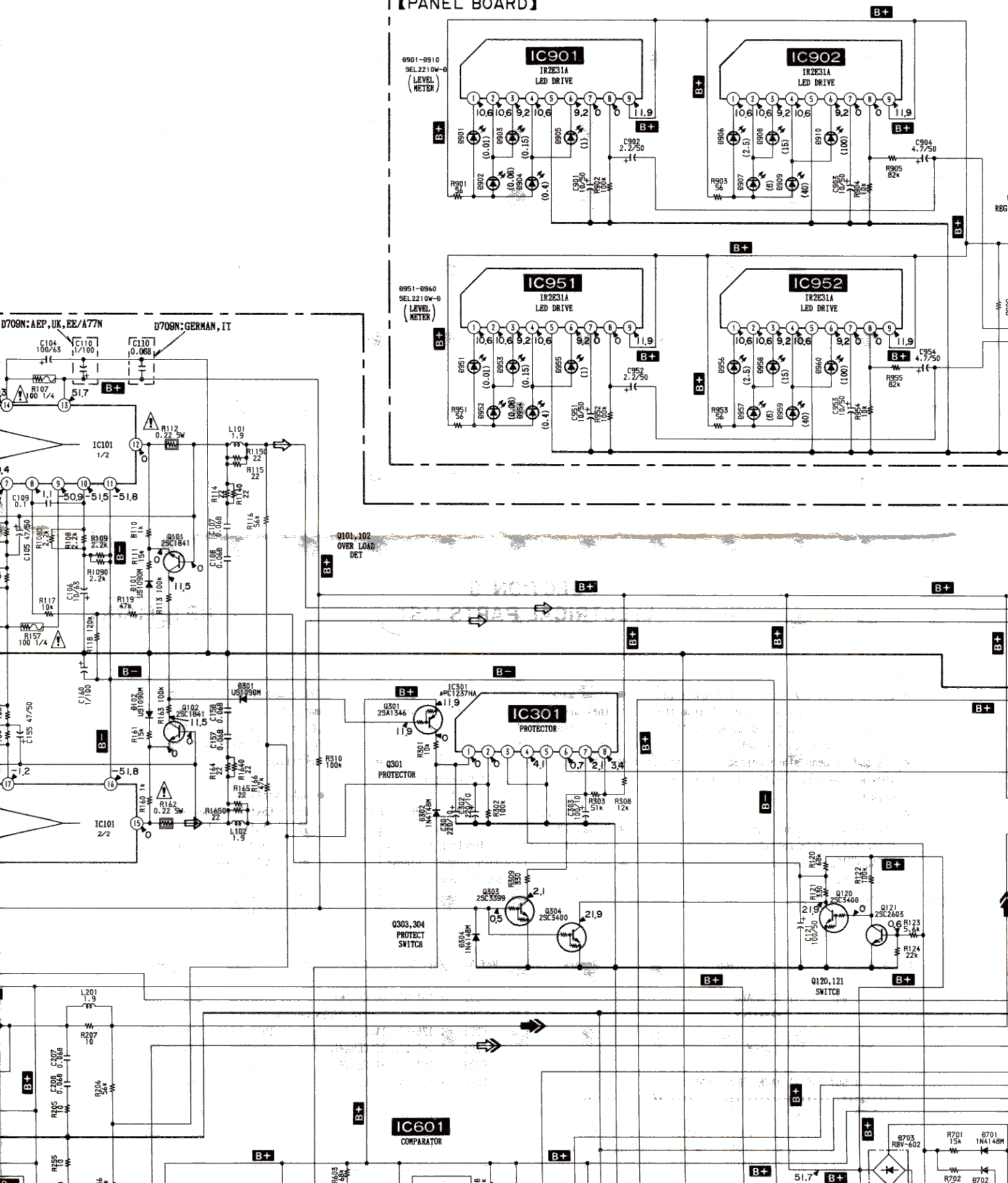
TRANSFORMER SECONDARY BOARD



3-4. SCHEMATIC DIAGRAM • Refer to page 6 for IC Block Diagrams.

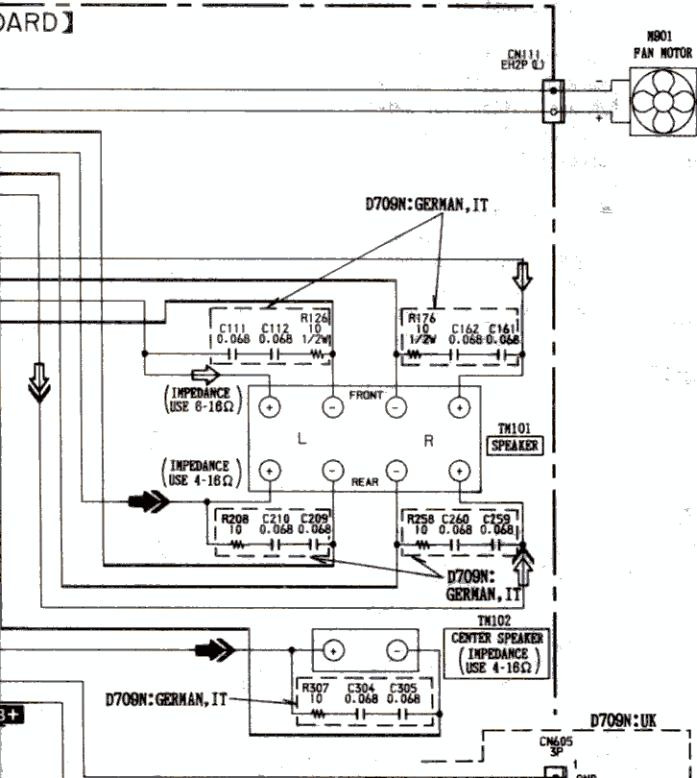


【PANEL BOARD】

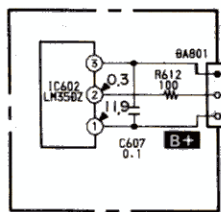
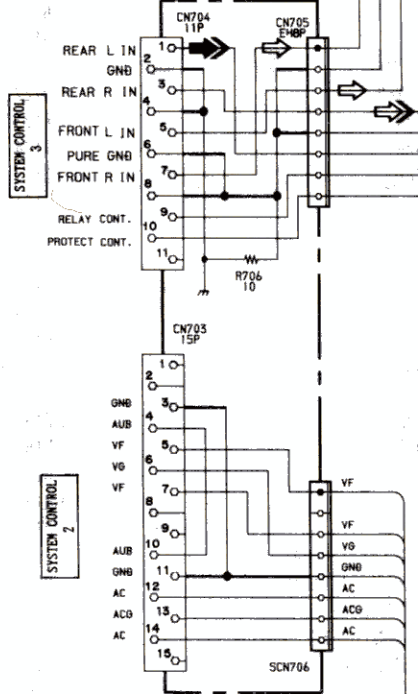


21 22 23 24

J101
HEADPHONES



SYSTEM CONNECTOR BOARD



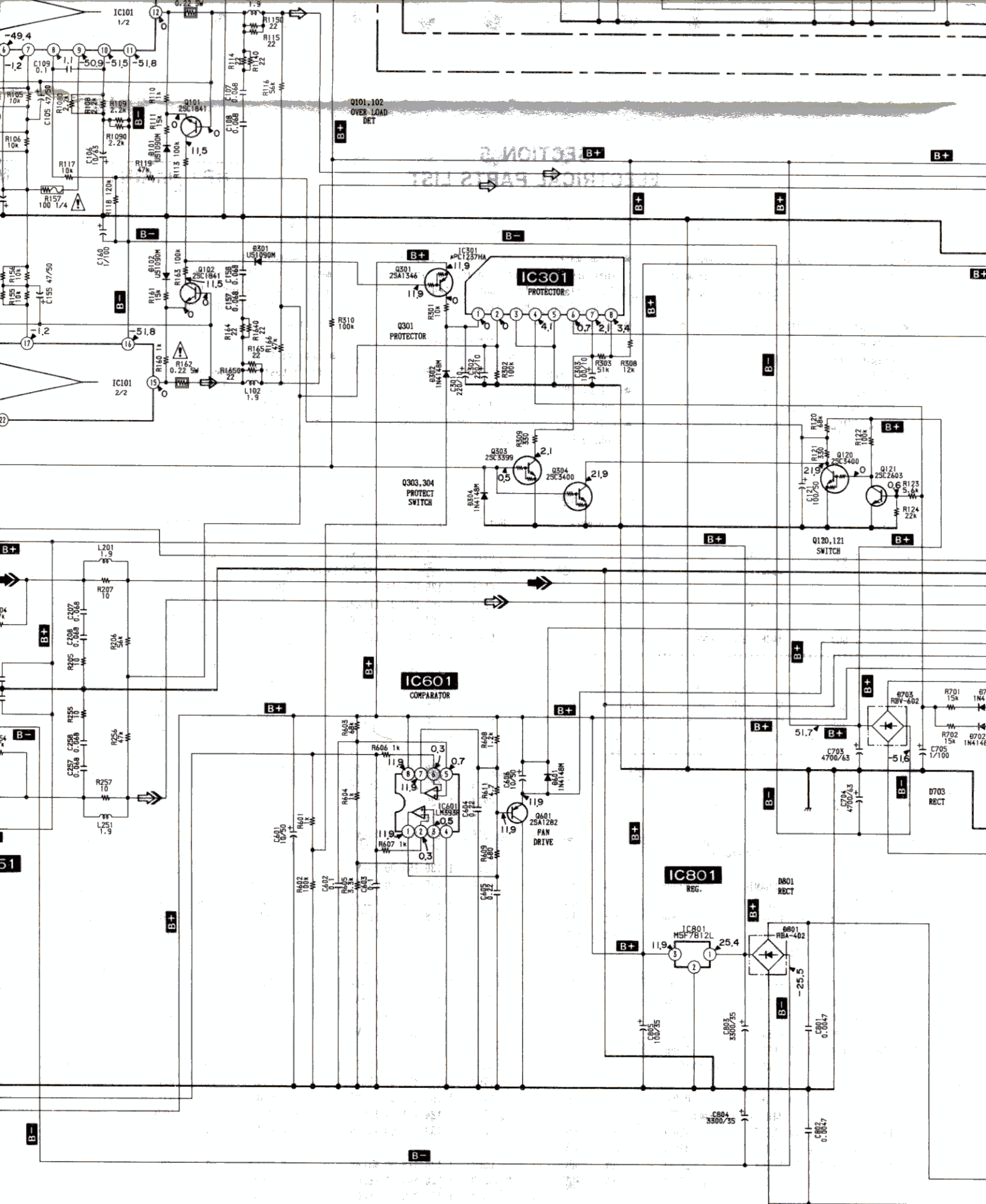
[SENSOR BOARD]

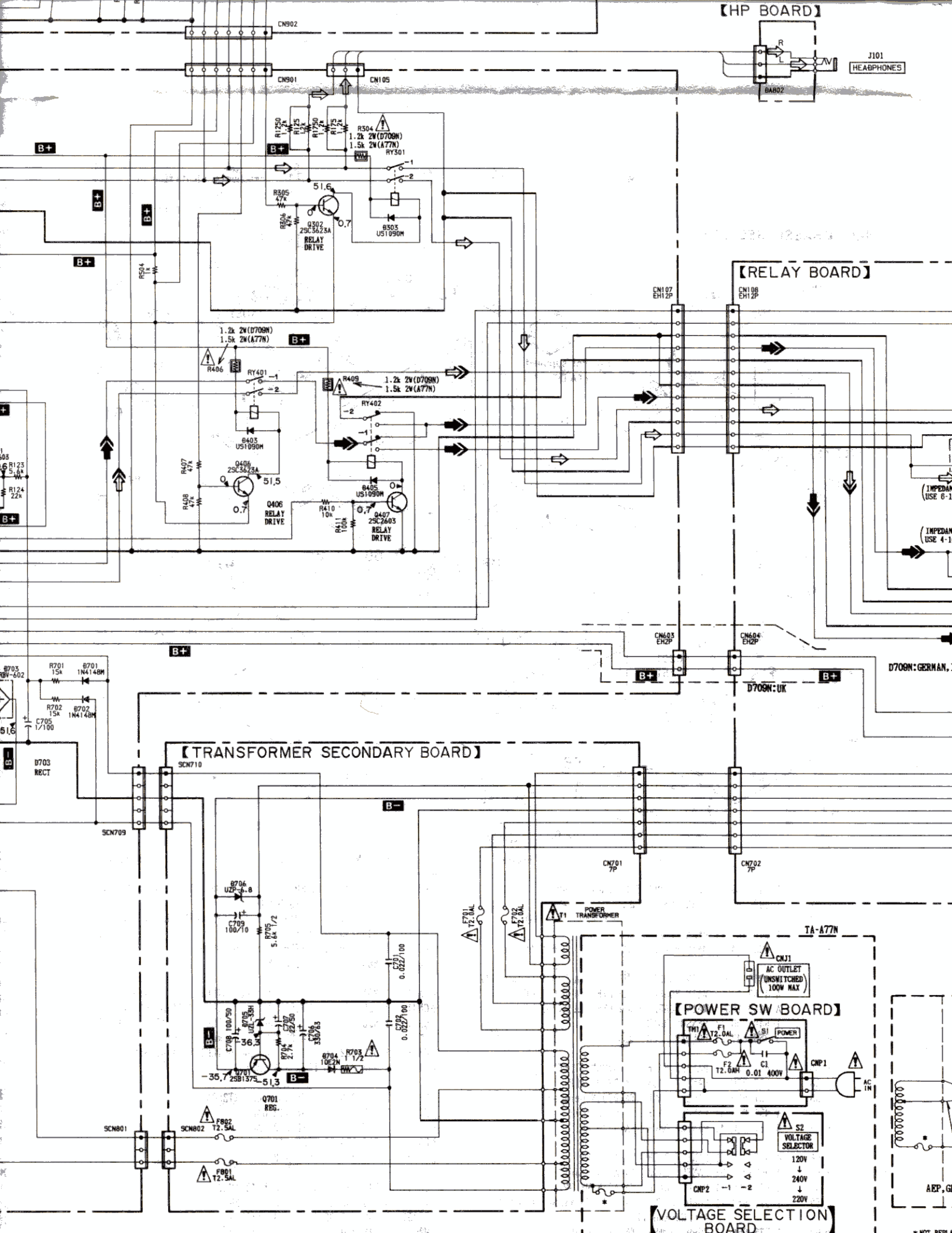
IC101
STK4211MK II
POWER AMP

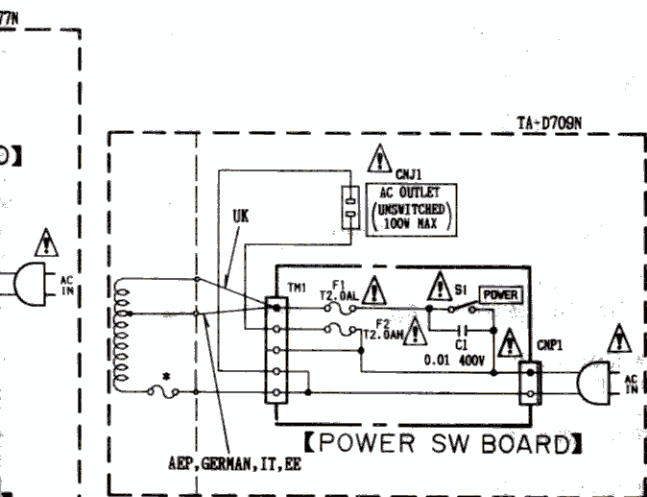
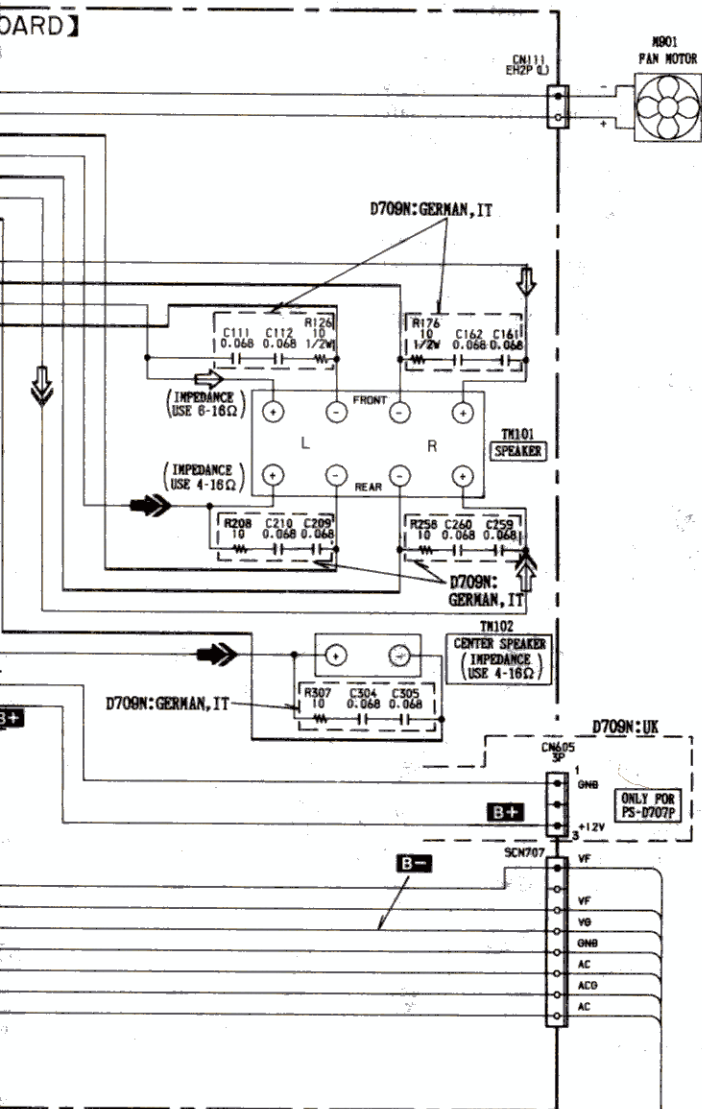
D708N:
GERMAN, IT
C171

IC201, IC251
LINE AMP

IC602
THERMAL
DET







2W31V 0P001A/C

Note:

- All capacitors are in μF unless otherwise noted. pF : μF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and $\frac{1}{4}\text{W}$ or less unless otherwise specified.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark or dotted line with mark are critical for safety. Replace only with part number specified.

- Voltage is dc with respect to ground under no-signal conditions. no mark : POWER ON
- Voltages are taken with a VOM (Input Impedance $10\text{M}\Omega$). Voltage variations may be noted due to normal production tolerances.
- Signal path.
 - : PHONO
 - : SURROUND
 - : CENTER
- Abbreviations
IT : Italian model

SECTION 4 EXPLODED VIEWS

NOTE:

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

- -XX and -X mean standardized parts, so they may have some difference from the original one.

● Color Indication of Appearance Parts

Example :

KNOB, BALANCE (WHITE)... (RED)

↑ ↑
Parts Color Cabinet's Color

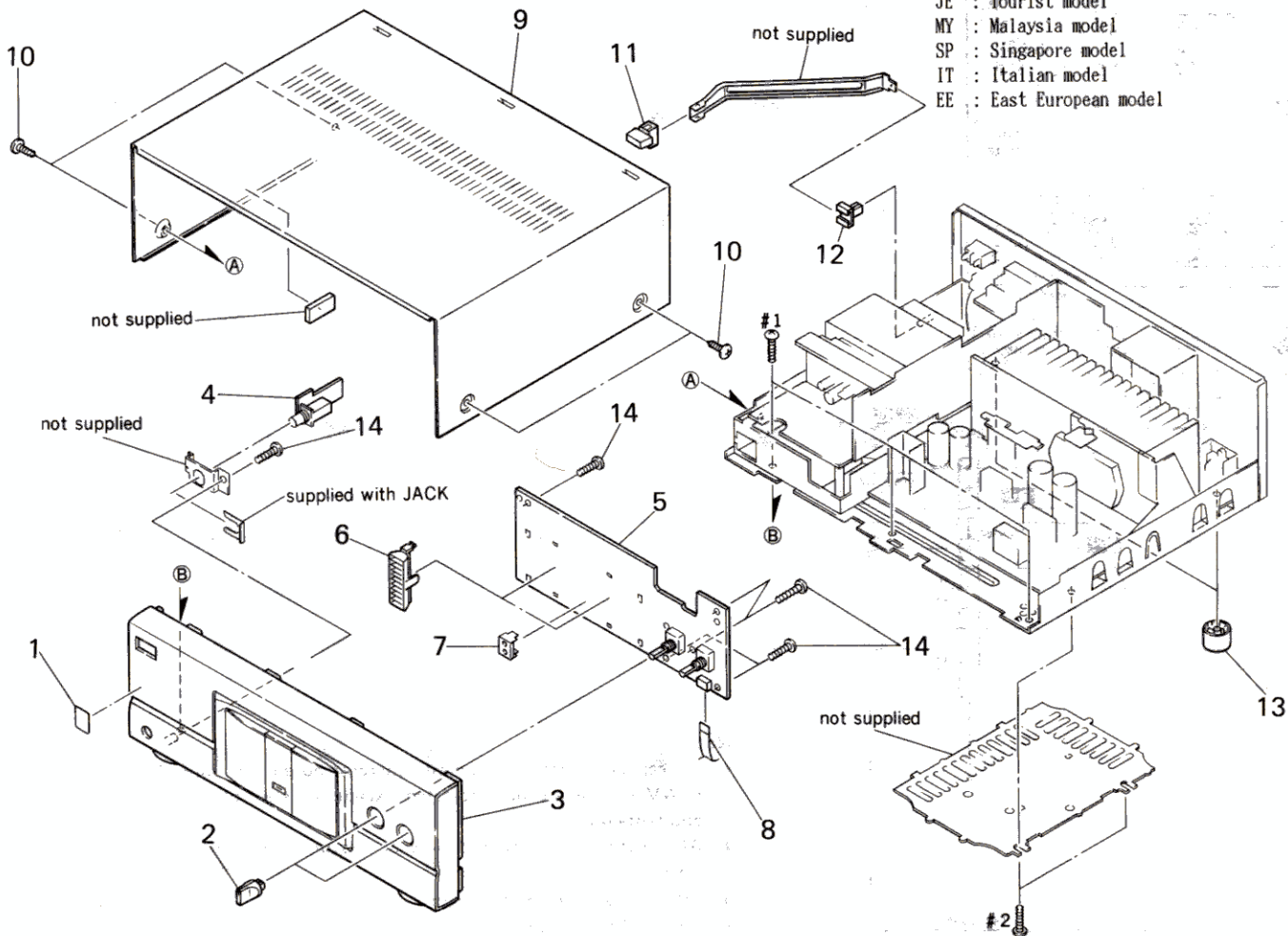
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark **A** or dotted line with mark **A** are critical for safety. Replace only with part number specified.

● Abbreviations

EA : Saudi Arabia model
AUS : Australian model
JE : Tourist model
MY : Malaysia model
SP : Singapore model
IT : Italian model
EE : East European model

4-1. CABINET SECTION

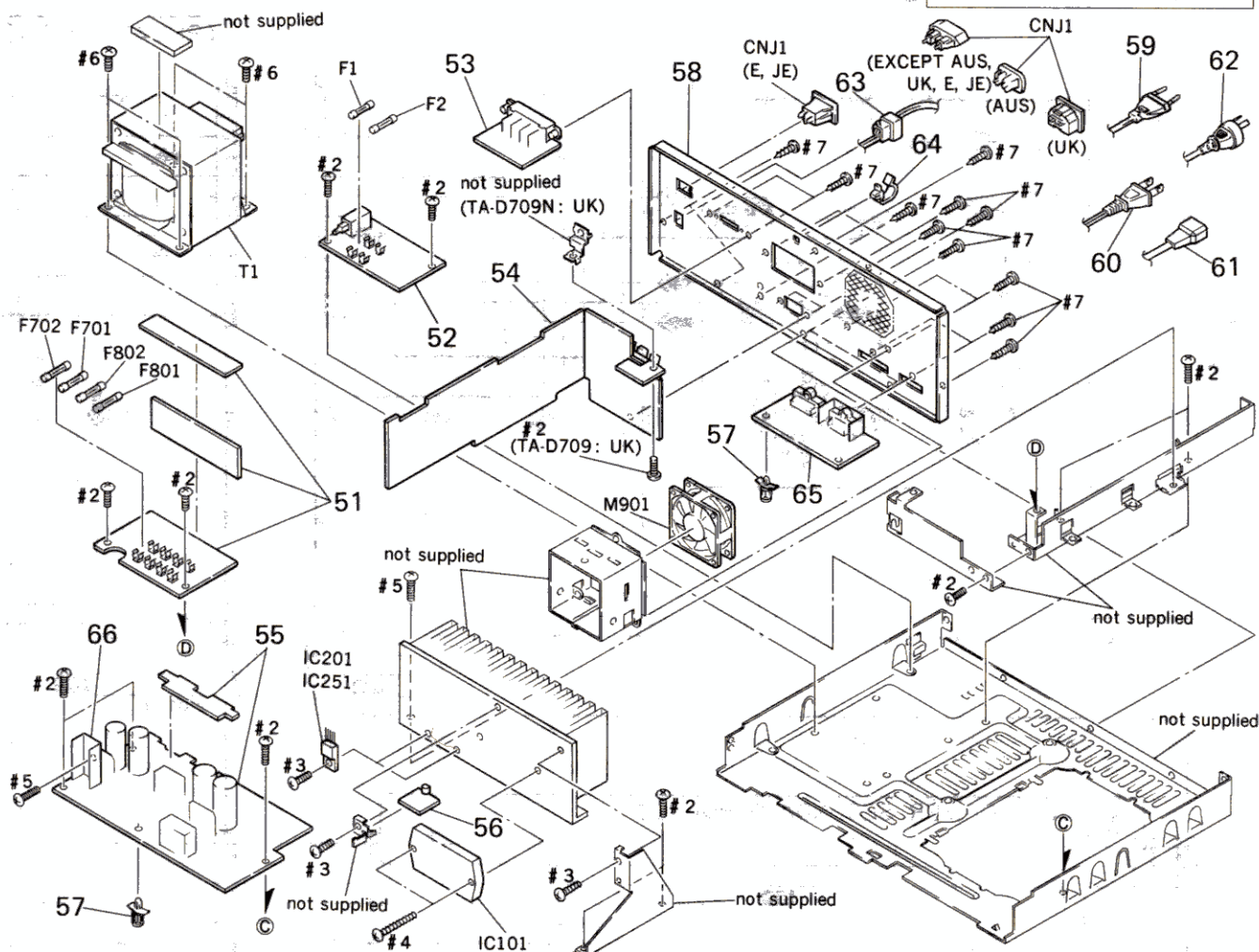


Ref. No.	Part No.	Description	Remark
1	3-703-710-41	STICKER, SONY SYMBOL (12)	
2	X-4944-100-1	KNOB ASSY	
3	X-4943-567-1	PANEL ASSY, FRONT (TA-D709N:AEP, German, IT, EE)	
3	X-4943-683-1	PANEL ASSY, FRONT (TA-A77N)	
3	X-4943-689-1	PANEL ASSY, FRONT (TA-D709N:UK)	
* 4	1-648-092-11	HP BOARD	
* 5	A-4360-763-A	PANEL BOARD, COMPLETE	
* 6	4-928-450-01	HOLDER (L), LED	

Ref. No.	Part No.	Description	Remark
* 7	4-928-444-01	HOLDER (S), LED	
8	1-590-239-31	WIRE, FLAT TYPE (7 CORE)	
* 9	4-949-912-51	CASE	
10	3-363-099-01	SCREW (CASE 3 TP2)	
11	4-942-061-11	BUTTON (P)	
12	4-866-342-00	JOINT (B), KNOB	
13	4-931-169-01	FOOT	
14	4-951-620-01	SCREW (2.6X8), +BVTP	

4-2. CHASSIS SECTION

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.



Ref. No.	Part No.	Description	Remark
* 51	1-648-086-11	TRANSFORMER SECONDARY BOARD	
* 52	1-648-088-11	POWER SW BOARD	
* 53	1-648-093-11	VOLTAGE SELECTION BOARD (TA-A77N)	
* 54	1-648-087-11	RELAY BOARD	
* 55	A-4360-749-A	MAIN BOARD, COMPLETE (TA-D709N:AEP, EE)	
* 55	A-4360-750-A	MAIN BOARD, COMPLETE (TA-D709N:German, IT)	
* 55	A-4365-102-A	MAIN BOARD, COMPLETE (TA-D709N:UK)	
* 55	A-4365-103-A	MAIN BOARD, COMPLETE (TA-A77N)	
* 56	1-648-090-11	SENSOR BOARD	
* 57	3-350-847-21	HOLDER, PCB	
* 58	4-957-930-01	PANEL, BACK (TA-D709N:IT, EE)	
* 58	4-957-930-11	PANEL, BACK (TA-D709N:AEP)	
* 58	4-957-930-21	PANEL, BACK (TA-D709N:German)	
* 58	4-957-930-31	PANEL, BACK (TA-D709N:UK)	
* 58	4-957-930-41	PANEL, BACK (TA-A77N:AUS)	
* 58	4-957-930-51	PANEL, BACK (TA-A77N:EA)	
* 58	4-957-930-61	PANEL, BACK (TA-A77N:E, JE)	
* 58	4-957-930-71	PANEL, BACK (TA-A77N:MY, SP)	
Δ 59	1-575-654-11	CORD, POWER (TA-A77N:EA, MY, SP/TA-D709N:AEP, German, IT, EE)	
Δ 60	1-575-656-11	CORD, POWER (TA-A77N:E, JE)	

Ref. No.	Part No.	Description	Remark
* 63	3-703-244-00	BUSHING (2104), CORD (TA-A77N:EA, AUS, MY, SP/TA-D709N)	
* 63	3-703-571-11	BUSHING (S) (4516), CORD (TA-A77N:E, JE)	
* 64	4-949-235-01	HOOK	
* 65	1-648-089-12	SYSTEM CONNECTOR BOARD	
* 66	4-880-403-11	HEAT SINK	
Δ CNJ1	1-251-078-11	OUTLET, AC (AC OUTLET) (TA-A77N:AUS)	
Δ CNJ1	1-526-751-00	OUTLET, AC (AC OUTLET) (TA-D709N:UK)	
Δ CNJ1	1-526-794-11	OUTLET, AC (AC OUTLET) (TA-A77N:EA, MY, SP/TA-D709N:AEP, German, IT, EE)	
Δ CNJ1	1-526-882-00	OUTLET, AC (AC OUTLET) (TA-A77N:E, JE)	
Δ F1	1-532-203-00	FUSE (T2.0AL)	
Δ F2	1-576-228-31	FUSE (H.B.C.) (T2.0AH)	
Δ F701	1-532-203-00	FUSE (T2.0AL)	
Δ F702	1-532-203-00	FUSE (T2.0AL)	
Δ F801	1-532-286-00	FUSE (T2.5AL)	
Δ F802	1-532-286-00	FUSE (T2.5AL)	
IC101	8-749-921-04	IC STK-4211MK2	
IC201	8-759-502-32	IC SI-18752N	
IC251	8-759-502-32	IC SI-18752N	
M001	1-541-860-41	MOTOR DC FAN	

SECTION 5 ELECTRICAL PARTS LIST

HP

MAIN

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
All resistors are in ohms.
METAL: Metal-film resistor.
METAL OXIDE: Metal oxide-film resistor.
F: nonflammable

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

• SEMICONDUCTORS

In each case, u: μ , for example:

uA...: μ A... uPA...: μ PA...

uPB...: μ PB... uPC...: μ PC... uPD...: μ PD...

• CAPACITORS

uF: μ F

• COILS

uH: μ H

When indicating parts by reference number, please include the board.

The components identified by mark Δ or dotted line with mark Δ are critical for safety. Replace only with part number specified.

• Abbreviations

EE : East European model
IT : Italian model
EA : Saudi Arabia model
MY : Malaysia model
SP : Singapore model
JE : Tourist model
AUS : Australian model

Ref. No.	Part No.	Description	Remark			
*	1-648-092-11	HP BOARD				

		< JACK >				
J101	1-507-796-71	JACK (HEADPHONES)				

*	A-4360-749-A	MAIN BOARD, COMPLETE (TA-D709N: AEP, EE)				
*	A-4360-750-A	MAIN BOARD, COMPLETE (TA-D709N: German, IT)				
*	A-4365-102-A	MAIN BOARD, COMPLETE (TA-D709N: UK)				
*	A-4365-103-A	MAIN BOARD, COMPLETE (TA-A77N)				

*	4-880-403-11	HEAT SINK				
*	4-942-204-01	PLATE, GROUND				
	7-682-548-04	SCREW +BVTT 3X8 (S)				
		< CAPACITOR >				
C101	1-162-290-31	CERAMIC	470PF	10%	50V	
C102	1-126-161-11	ELECT	2.2uF	20%	50V	
C103	1-124-995-11	ELECT	220uF	20%	10V	
C104	1-124-572-11	ELECT	100uF	20%	63V	
C105	1-124-910-11	ELECT	47uF	20%	50V	
C106	1-126-059-11	ELECT	10uF	20%	63V	
C107	1-136-163-00	FILM	0.068uF	5%	50V	
C108	1-136-163-00	FILM	0.068uF	5%	50V	
C109	1-136-165-00	FILM	0.1uF	5%	50V	
C110	1-124-791-11	ELECT	1.0uF	20%	100V	
		(EXCEPT TA-D709N: German, IT)				
C110	1-136-163-00	FILM	0.068uF	5%	50V	
		(TA-D709N: German, IT)				
C121	1-124-122-11	ELECT	100uF	20%	50V	
C151	1-162-290-31	CERAMIC	470PF	10%	50V	
C152	1-126-161-11	ELECT	2.2uF	20%	50V	
C153	1-124-995-11	ELECT	220uF	20%	10V	
C154	1-124-572-11	ELECT	100uF	20%	63V	
C155	1-124-910-11	ELECT	47uF	20%	50V	
C157	1-136-163-00	FILM	0.068uF	5%	50V	
C158	1-136-163-00	FILM	0.068uF	5%	50V	
C160	1-124-791-11	ELECT	1.0uF	20%	100V	

Ref. No.	Part No.	Description	Remark			
C172	1-161-377-00	CERAMIC	0.0047uF	20%	16V	
		(TA-D709N: German, IT)				
C201	1-126-059-11	ELECT	10uF	20%	50V	
C202	1-162-282-31	CERAMIC	100PF	10%	50V	
C203	1-162-282-31	CERAMIC	100PF	10%	50V	
C204	1-126-049-11	ELECT	22uF	20%	25V	
C205	1-136-165-00	FILM	0.1uF	5%	50V	
C206	1-136-165-00	FILM	0.1uF	5%	50V	
C207	1-136-163-00	FILM	0.068uF	5%	50V	
C208	1-136-163-00	FILM	0.068uF	5%	50V	
C251	1-126-059-11	ELECT	10uF	20%	50V	
C252	1-162-282-31	CERAMIC	100PF	10%	50V	
C253	1-162-282-31	CERAMIC	100PF	10%	50V	
C254	1-126-049-11	ELECT	22uF	20%	25V	
C255	1-136-165-00	FILM	0.1uF	5%	50V	
C256	1-136-165-00	FILM	0.1uF	5%	50V	
C257	1-136-163-00	FILM	0.068uF	5%	50V	
C258	1-136-163-00	FILM	0.068uF	5%	50V	
C301	1-126-101-11	ELECT	100uF	20%	16V	
C302	1-126-101-11	ELECT	100uF	20%	16V	
C303	1-124-994-11	ELECT	100uF	20%	10V	
C601	1-126-059-11	ELECT	10uF	20%	50V	
C602	1-164-159-11	CERAMIC	0.1uF		50V	
C603	1-164-159-11	CERAMIC	0.1uF		50V	
C604	1-136-169-00	FILM	0.22uF	5%	50V	
C605	1-136-169-00	FILM	0.22uF	5%	50V	
C606	1-126-059-11	ELECT	10uF	20%	50V	
C703	1-107-497-51	ELECT	4700uF	20%	63V	
C704	1-107-497-51	ELECT	4700uF	20%	63V	
C705	1-124-791-11	ELECT	1.0uF	20%	100V	
C801	1-130-479-00	MYLAR	0.0047uF	5%	50V	
C802	1-130-479-00	MYLAR	0.0047uF	5%	50V	
C803	1-126-860-11	ELECT	3300uF	20%	35V	
C804	1-126-860-11	ELECT	3300uF	20%	35V	
C805	1-124-122-11	ELECT	100uF	20%	50V	

< CONNECTOR >

- * CN101 1-564-508-11 PLUG, CONNECTOR 5P
- * CN103 1-564-507-11 PLUG, CONNECTOR 4P

MAIN

Ref. No.	Part No.	Description	Remark
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- * CN601 1-564-337-00 PIN, CONNECTOR 3P
- * CN603 1-564-505-11 PLUG, CONNECTOR 2P. (TA-D709N:UK)
- * CN901 1-568-826-11 SOCKET, CONNECTOR 7P

< DIODE >

D101	8-719-815-85	DIODE	1S1585
D102	8-719-815-85	DIODE	1S1585
D301	8-719-815-85	DIODE	1S1585
D302	8-719-987-63	DIODE	1N4148M
D303	8-719-815-85	DIODE	1S1585

D304	8-719-987-63	DIODE	1N4148M
D403	8-719-987-63	DIODE	1N4148M
D405	8-719-987-63	DIODE	1N4148M
D601	8-719-987-63	DIODE	1N4148M
D701	8-719-987-63	DIODE	1N4148M

D702	8-719-987-63	DIODE	1N4148M
D703	8-719-302-38	DIODE	RBV-602-01
D801	8-719-312-09	DIODE	RBA-402

< IC >

IC101	8-749-921-04	IC	STK-4211MK2
IC201	8-759-502-32	IC	SI-18752N
IC251	8-759-502-32	IC	SI-18752N
IC301	8-759-111-68	IC	uPC1237HA
IC601	8-759-103-93	IC	uPC393C

IC801	8-759-231-58	IC	TA7812S
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< COIL >

L101	1-420-872-00	COIL, AIR CORE
L102	1-420-872-00	COIL, AIR CORE
L201	1-420-872-00	COIL, AIR CORE
L251	1-420-872-00	COIL, AIR CORE

< TRANSISTOR >

Q101	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA
Q102	8-729-140-84	TRANSISTOR	2SC1841-PAFAEA
Q120	8-729-900-36	TRANSISTOR	DTC124ES
Q121	8-729-620-05	TRANSISTOR	2SC2603-EF
Q301	8-729-900-63	TRANSISTOR	DTA124ES

Q302	8-729-620-05	TRANSISTOR	2SC2603-EF
Q303	8-729-620-05	TRANSISTOR	2SC2603-EF
Q304	8-729-900-36	TRANSISTOR	DTC124ES
Q406	8-729-620-05	TRANSISTOR	2SC2603-EF
Q407	8-729-620-05	TRANSISTOR	2SC2603-EF

Q601	8-729-140-93	TRANSISTOR	2SB733-34
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< RESISTOR >

R101	1-249-417-11	CARBON	1K 5% 1/4W
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Ref. No.	Part No.	Description	Remark
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R102	1-249-438-11	CARBON	56K 5% 1/4W
R103	1-249-414-11	CARBON	560 5% 1/4W
R104	1-249-438-11	CARBON	56K 5% 1/4W
R105	1-249-429-11	CARBON	10K 5% 1/4W
R106	1-249-429-11	CARBON	10K 5% 1/4W

△R107	1-212-881-11	FUSIBLE	100 5% 1/4W F
R108	1-249-421-11	CARBON	2.2K 5% 1/4W
R109	1-249-421-11	CARBON	2.2K 5% 1/4W
R110	1-249-417-11	CARBON	1K 5% 1/4W
R111	1-249-431-11	CARBON	15K 5% 1/4W

△R112	1-217-156-00	METAL PLATE	0.22 5W
R113	1-249-441-11	CARBON	100K 5% 1/4W
R114	1-249-397-11	CARBON	22 5% 1/4W
R115	1-249-397-11	CARBON	22 5% 1/4W
R116	1-249-438-11	CARBON	56K 5% 1/4W

R117	1-249-429-11	CARBON	10K 5% 1/4W
R118	1-247-881-00	CARBON	120K 5% 1/4W
R119	1-249-437-11	CARBON	47K 5% 1/4W
R120	1-249-439-11	CARBON	68K 5% 1/4W
R121	1-249-411-11	CARBON	330 5% 1/4W

R122	1-249-441-11	CARBON	100K 5% 1/4W
R123	1-249-426-11	CARBON	5.6K 5% 1/4W
R124	1-249-433-11	CARBON	22K 5% 1/4W
R125	1-249-418-11	CARBON	1.2K 5% 1/4W
R151	1-249-417-11	CARBON	1K 5% 1/4W

R152	1-249-438-11	CARBON	56K 5% 1/4W
R153	1-249-414-11	CARBON	560 5% 1/4W
R154	1-249-438-11	CARBON	56K 5% 1/4W
R155	1-249-429-11	CARBON	10K 5% 1/4W
R156	1-249-429-11	CARBON	10K 5% 1/4W

△R157	1-212-881-11	FUSIBLE	100 5% 1/4W F
R160	1-249-417-11	CARBON	1K 5% 1/4W
R161	1-249-431-11	CARBON	15K 5% 1/4W
△R162	1-217-156-00	METAL PLATE	0.22 5W
R163	1-249-441-11	CARBON	100K 5% 1/4W

R164	1-249-397-11	CARBON	22 5% 1/4W
R165	1-249-397-11	CARBON	22 5% 1/4W
R166	1-249-437-11	CARBON	47K 5% 1/4W
R175	1-249-418-11	CARBON	1.2K 5% 1/4W
R201	1-249-417-11	CARBON	1K 5% 1/4W

R202	1-249-437-11	CARBON	47K 5% 1/4W
R203	1-249-417-11	CARBON	1K 5% 1/4W
R204	1-249-437-11	CARBON	47K 5% 1/4W
R205	1-249-393-11	CARBON	10 5% 1/4W
R206	1-249-438-11	CARBON	56K 5% 1/4W

R207	1-249-393-11	CARBON	10 5% 1/4W
R251	1-249-417-11	CARBON	1K 5% 1/4W
R252	1-249-437-11	CARBON	47K 5% 1/4W
R253	1-249-417-11	CARBON	1K 5% 1/4W

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number

Ref. No.	Part No.	Description	Remark		
R254	1-249-437-11	CARBON	47K	5%	1/4W
R255	1-249-393-11	CARBON	10	5%	1/4W
R256	1-249-437-11	CARBON	47K	5%	1/4W
R257	1-249-393-11	CARBON	10	5%	1/4W
R301	1-249-429-11	CARBON	10K	5%	1/4W
R302	1-249-441-11	CARBON	100K	5%	1/4W
R303	1-247-872-11	CARBON	51K	5%	1/4W
△R304	1-215-893-11	METAL OXIDE (TA-A77N)	1.5K	5%	2W F
△R304	1-216-457-00	METAL OXIDE (TA-D709N)	1.2K	5%	2W F
R305	1-249-437-11	CARBON	47K	5%	1/4W
R306	1-249-437-11	CARBON	47K	5%	1/4W
R308	1-249-430-11	CARBON	12K	5%	1/4W
R309	1-249-411-11	CARBON	330	5%	1/4W
R310	1-249-441-11	CARBON	100K	5%	1/4W
R311	1-249-417-11	CARBON	1K	5%	1/4W
△R406	1-215-893-11	METAL OXIDE (TA-A77N)	1.5K	5%	2W F
△R406	1-216-457-00	METAL OXIDE (TA-D709N)	1.2K	5%	2W F
R407	1-249-437-11	CARBON	47K	5%	1/4W
R408	1-249-437-11	CARBON	47K	5%	1/4W
△R409	1-215-893-11	METAL OXIDE (TA-A77N)	1.5K	5%	2W F
△R409	1-216-457-00	METAL OXIDE (TA-D709N)	1.2K	5%	2W F
R410	1-249-429-11	CARBON	10K	5%	1/4W
R411	1-249-441-11	CARBON	100K	5%	1/4W
R504	1-249-417-11	CARBON	1K	5%	1/4W
R601	1-249-417-11	CARBON	1K	5%	1/4W
R602	1-249-441-11	CARBON	100K	5%	1/4W
R603	1-249-439-11	CARBON	68K	5%	1/4W
R604	1-249-417-11	CARBON	1K	5%	1/4W
R605	1-249-423-11	CARBON	3.3K	5%	1/4W
R606	1-249-417-11	CARBON	1K	5%	1/4W
R607	1-249-417-11	CARBON	1K	5%	1/4W
R608	1-249-418-11	CARBON	1.2K	5%	1/4W
R609	1-249-415-11	CARBON	680	5%	1/4W
R611	1-249-389-11	CARBON	4.7	5%	1/4W
R701	1-249-431-11	CARBON	15K	5%	1/4W
R702	1-249-431-11	CARBON	15K	5%	1/4W
R1050	1-249-429-11	CARBON	10K	5%	1/4W
R1060	1-249-429-11	CARBON	10K	5%	1/4W
R1080	1-249-421-11	CARBON	2.2K	5%	1/4W
R1090	1-249-421-11	CARBON	2.2K	5%	1/4W
R1140	1-249-397-11	CARBON	22	5%	1/4W
R1150	1-249-397-11	CARBON	22	5%	1/4W
R1250	1-249-418-11	CARBON	1.2K	5%	1/4W
R1550	1-249-429-11	CARBON	10K	5%	1/4W

Ref. No.	Part No.	Description	Remark		
R1560	1-249-429-11	CARBON	10K	5%	1/4W
R1640	1-249-397-11	CARBON	22	5%	1/4W
R1650	1-249-397-11	CARBON	22	5%	1/4W
R1750	1-249-418-11	CARBON	1.2K	5%	1/4W
< RELAY >					
RY301	1-515-765-11	RELAY			
RY401	1-515-920-11	RELAY (24V)			
RY402	1-515-360-21	RELAY			

*	A-4360-763-A	PANEL BOARD, COMPLETE			

*	4-928-444-01	HOLDER (S), LED			
*	4-928-450-01	HOLDER (L), LED			
< CAPACITOR >					
C901	1-126-059-11	ELECT	10uF	20%	50V
C902	1-126-161-11	ELECT	2.2uF	20%	50V
C903	1-126-059-11	ELECT	10uF	20%	50V
C904	1-126-163-11	ELECT	4.7uF	20%	50V
C951	1-126-059-11	ELECT	10uF	20%	50V
C952	1-126-161-11	ELECT	2.2uF	20%	50V
C953	1-126-059-11	ELECT	10uF	20%	50V
C954	1-126-163-11	ELECT	4.7uF	20%	50V
< CONNECTOR >					
* CN902	1-568-850-11	SOCKET, CONNECTOR 7P			
< DIODE >					
D503	8-719-987-63	DIODE 1N4148M			
D504	8-719-301-44	LED SEL2410E-D (OPERATION)			
D505	8-719-302-75	LED SEL2210W-D (PROTECT)			
D901-910					
	8-719-302-75	LED SEL2210W-D (PEAK LEVEL METER)			
D951-960					
	8-719-302-75	LED SEL2210W-D (PEAK LEVEL METER)			
< IC >					
IC901	8-759-917-42	IC IR2E31A			
IC902	8-759-917-42	IC IR2E31A			
IC951	8-759-917-42	IC IR2E31A			
IC952	8-759-917-42	IC IR2E31A			
< TRANSISTOR >					
Q505	8-729-900-63	TRANSISTOR DTA124ES			
Q506	8-729-900-36	TRANSISTOR DTC124ES			
Q903	8-729-140-93	TRANSISTOR 2SB733-34			
Q904	8-729-900-36	TRANSISTOR DTC124ES			

The components identified by mark △ or dotted line with mark. △ are critical for safety. Replace only with part number specified.

PANEL

POWER SW

RELAY

Ref. No.	Part No.	Description	Remark
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< RESISTOR >

R901	1-249-402-11	CARBON	56 5% 1/4W
R902	1-249-441-11	CARBON	100K 5% 1/4W
R903	1-249-402-11	CARBON	56 5% 1/4W
R904	1-249-429-11	CARBON	10K 5% 1/4W
R905	1-249-440-11	CARBON	82K 5% 1/4W

R906	1-249-417-11	CARBON	1K 5% 1/4W
R907	1-249-431-11	CARBON	15K 5% 1/4W
R908	1-249-424-11	CARBON	3.9K 5% 1/4W
R909	1-249-429-11	CARBON	10K 5% 1/4W
R910	1-249-429-11	CARBON	10K 5% 1/4W

R911	1-249-405-11	CARBON	100 5% 1/4W
R912	1-247-822-11	CARBON	430 5% 1/4W
R913	1-249-414-11	CARBON	560 5% 1/4W
R914	1-249-417-11	CARBON	1K 5% 1/4W
R951	1-249-402-11	CARBON	56 5% 1/4W

R952	1-249-441-11	CARBON	100K 5% 1/4W
R953	1-249-402-11	CARBON	56 5% 1/4W
R954	1-249-429-11	CARBON	10K 5% 1/4W
R955	1-249-440-11	CARBON	82K 5% 1/4W
R956	1-249-417-11	CARBON	1K 5% 1/4W

R957	1-249-431-11	CARBON	15K 5% 1/4W
R958	1-249-424-11	CARBON	3.9K 5% 1/4W

< SWITCH >

S901	1-692-479-11	SWITCH, ROTARY (RANGE)
S902	1-692-479-11	SWITCH, ROTARY (SPEAKERS)

*	1-648-088-11	POWER SW BOARD
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*	1-533-213-31	HOLDER, FUSE
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< CAPACITOR >

△C1	1-161-744-00	CERAMIC	0.01uF	400V
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< CONNECTOR >

* CNP1	1-564-321-00	PIN, CONNECTOR 2P
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< FUSE >

△F1	1-532-203-00	FUSE (T2.0AL)
△F2	1-576-228-31	FUSE (H.B.C) (T2.0AH)

< SWITCH >

△S1	1-554-920-51	SWITCH, PUSH (AC POWER) (1 KEY) (POWER)
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Ref. No.	Part No.	Description	Remark
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< TERMINAL >

* TM1	1-535-142-00	BASE POST 19MM (10MM PITCH) 5P
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*	1-648-087-11	RELAY BOARD
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< CAPACITOR >

C111	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C112	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C161	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C162	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C209	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C210	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C259	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C260	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C304	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

C305	1-136-163-00	FILM	0.068uF	5%	50V
		(TA-D709N:German, IT)			

< CONNECTOR >

* CN108	1-564-515-11	PLUG, CONNECTOR 12P
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* CN111	1-564-517-11	PLUG, CONNECTOR 2P
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* CN604	1-564-505-11	PLUG, CONNECTOR 2P (TA-D709N:UK)
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* CN605	1-566-210-11	PIN, CONNECTOR 3P (ONLY FOR PS-D707P)
		(TA-D709N:UK)

* CN702	1-569-493-11	SOCKET, CONNECTOR 7P
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< RESISTOR >

R126	1-247-727-11	CARBON	10 5% 1/2W
		(TA-D709N:German, IT)	

R176	1-247-727-11	CARBON	10 5% 1/2W
		(TA-D709N:German, IT)	

R208	1-249-393-11	CARBON	10 5% 1/4W
		(TA-D709N:German, IT)	

R258	1-249-393-11	CARBON	10 5% 1/4W
		(TA-D709N:German, IT)	

R307	1-249-393-11	CARBON	10 5% 1/4W
		(TA-D709N:German, IT)	

< TERMINAL >

TM101	1-537-552-11	TERMINAL, PUSH (8P) (SPEAKER)
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TM102	1-537-551-11	TERMINAL, PUSH (2P) (CENTER SPEAKER)
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The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

SENSOR

SYSTEM CONNECTOR

TRANSFORMER SECONDARY

VOLTAGE SELECTION

Ref. No.	Part No.	Description	Remark
*	1-648-090-11	SENSOR BOARD *****	
		< CAPACITOR >	
C607	1-164-159-11	CERAMIC 0.1uF	50V
		< IC >	
IC602	8-759-947-34	IC LM35DZ	
		< RESISTOR >	
R612	1-249-405-11	CARBON 100 5% 1/4W	

*	1-648-089-12	SYSTEM CONNECTOR BOARD *****	
		< CONNECTOR >	
* CN703	1-566-859-11	SOCKET, CONNECTOR 15P (SYSTEM CONTROL 2)	
* CN704	1-566-858-31	SOCKET, CONNECTOR 11P (SYSTEM CONTROL 3)	
* CN705	1-564-511-11	PLUG, CONNECTOR 8P	
		< RESISTOR >	
R706	1-249-393-11	CARBON 10 5% 1/4W	

*	1-648-086-11	TRANSFORMER SECONDARY BOARD *****	
*	1-533-213-31	HOLDER, FUSE	
		< CAPACITOR >	
C701	1-106-375-12	MYLAR 0.022uF	5% 200V
C702	1-106-375-12	MYLAR 0.022uF	5% 200V
C706	1-124-920-11	ELECT 330uF	20% 63V
C707	1-126-233-11	ELECT 22uF	20% 50V
C708	1-124-122-11	ELECT 100uF	20% 50V
C709	1-124-994-11	ELECT 100uF	20% 10V
		< CONNECTOR >	
* CN701	1-569-502-11	PIN, CONNECTOR 7P	
		< DIODE >	
D704	8-719-200-77	DIODE 10E2N	
D705	8-719-002-67	DIODE UZL-33H	
D706	8-719-014-88	DIODE UZP-6.8BC	
		< FUSE >	
△F701	1-532-203-00	FUSE (T2. 0AL)	

Ref. No.	Part No.	Description	Remark
△F702	1-532-203-00	FUSE (T2. 0AL)	
△F801	1-532-286-00	FUSE (T2. 5AL)	
△F802	1-532-286-00	FUSE (T2. 5AL)	
		< TRANSISTOR >	
Q701	8-729-141-83	TRANSISTOR 2SB1094-LK	
		< RESISTOR >	
△R703	1-212-934-00	FUSIBLE 1 5% 1/2W F	
R704	1-249-422-11	CARBON 2.7K 5% 1/4W	
R705	1-247-761-11	CARBON 5.6K 5% 1/2W	

*	1-648-093-11	VOLTAGE SELECTION BOARD (TA-A77N) *****	
		< CONNECTOR >	
* CNP2	1-573-565-11	PIN, CONNECTOR 5P (TA-A77N)	
		< SWITCH >	
△S2	1-572-009-11	SELECTOR, VOLTAGE (VOLTAGE SELECTOR) (TA-A77N)	

		MISCELLANEOUS *****	
8	1-590-239-31	WIRE, FLAT TYPE (7 CORE)	
△59	1-575-654-11	CORD, POWER (TA-A77N:EA, MY, SP/TA-D709N: AEP, German, IT, EE)	
△60	1-575-656-11	CORD, POWER (TA-A77N:E, JE)	
△61	1-575-669-21	CORD, POWER (TA-D709N:UK)	
△62	1-751-355-11	CORD, POWER (TA-A77N:AUS)	
△CNJ1	1-251-078-11	OUTLET, AC (AC OUTLET) (TA-A77N:AUS)	
△CNJ1	1-526-751-00	OUTLET, AC (AC OUTLET) (TA-D709N:UK)	
△CNJ1	1-526-794-11	OUTLET, AC (AC OUTLET) (TA-A77N:EA, MY, SP /TA-D709N:AEP, German, IT, EE)	
△CNJ1	1-526-882-00	OUTLET, AC (AC OUTLET) (TA-A77N:E, JE)	
M901	1-541-860-41	MOTOR, DC FAN	
△T1	1-423-662-11	TRANSFORMER, POWER (TA-D709N)	
△T1	1-423-664-11	TRANSFORMER, POWER (TA-A77N)	

The components identified by
mark △ or dotted line with mark.
△ are critical for safety.
Replace only with part number
specified.

Ref. No.	Part No.	Description	Remark
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HARDWARE LIST

#1	7-685-646-79	SCREW +BTP 3X8 TYPE2 N-S	
#2	7-682-547-09	SCREW +BVTT 3X6 (S)	
#3	7-685-646-81	SCREW +BVTP 3X8 TYPE2	
#4	7-685-650-79	SCREW +BVTP 3X16 TYPE2	
#5	7-682-548-04	SCREW +BVTT 3X8 (S)	
#6	7-682-560-04	SCREW +BVTT 4X6 (S)	
#7	7-621-849-00	SCREW (BV/RING)	